will help you to write complex programs easily and with confidence.

You can write your Electron programs in this professional way because of the very powerful form of the BASIC language that is provided. It includes many facilities to make writing programs simpler and more efficient. It also has a large number of commands which allow you to use the Electron's high resolution colour graphics and internal loudspeaker, without having to write many lines of program for everything you want to do.

SUPPORT AND SERVICE

Acorn Computers has built up one of the most extensive dealer and service networks in the country: a network which is immediately available to Electron owners. Each approved dealer is able to offer you advice and to carry out repairs. In addition Acorn has a specialist service centre which undertakes warranty work.

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TECHNICAL DESCRIPTION

PROCESSOR

The Electron's central processing unit is a 2 MHz 6502 microprocessor.

MEMORY

64K bytes of memory are provided: a 32K Read Only Memory (ROM) containing the Machine Operating System and a BASIC interpreter, and 32K of Random Access Memory (RAM).

About 3½K of RAM is required by the Machine Operating System; the remainder is available for the high resolution graphics display and user programs.

DISPLAY

The Electron provides a colour television signal for connection to a normal domestic television via its aerial socket. The signal, available through a phono connector, is 625 line, 50 Hz, PAL colour encoded, modulated on UHF channel 36. A two metre lead for connecting the Electron to a TV is supplied with the machine.

A DIN connector provides an R/G/B/sync output at TTL levels for direct drive to a colour monitor.

A second phono connector provides output for a composite video monitor.

Seven display modes are available, providing differing text and graphics resolutions and simultaneous colour availability, and using differing amounts of RAM. The details of the modes are summarised in the table below.

A full character set is provided, including upper and lower case characters with genuine descenders.

Additional text characters can be defined by the user. Text and graphics can be freely mixed, and user defined characters can be placed anywhere on the screen, not just at the normal text positions.

Separate or overlapping text and graphics windows can be defined by the user over any area of the display. Each window can be filled separately, and text may be scrolled up or down within the text window.

A number of software facilities are provided to simplify graphics production, including line drawing and filling areas with

ELECTRON DISPLAY MODES

Mode	Graphic resolution (dots)	Text resolution (characters×lines)	Simultaneous colours	RAM used
0	640×256	80×32	2	20K
1	320×256	40×32	4	20K
2	160×256	20×32	16	20K
3	Text only	80×25	2	16K
4	320×256	40×32	2	10K
5	160×256	20×32	4	10K
6	Text only	40×25	2	8K

The colours available are: black, white, red, green, yellow, blue, magenta and cyan.
In addition eight flashing colours can be chosen.

colour. In particular, very rapid colour changes are possible using the palette.

EXTERNAL STORAGE

The Electron can be connected to most standard audio cassette recorders or the BBC Data Recorder to record programs for permanent storage, and to load existing programs into the Electron's memory. The computer provides full automatic motor control, so that when used with a cassette recorder with an external motor control facility the tape will stop automatically at the end of a file. The connection is via a 7-pin DIN socket, and transmission is at 1200 baud using the computer user's tape standard tones.

BBC BASIC

The BASIC interpreter is identical to that implemented in the highly successful BBC Microcomputer. Certain hardware features of the BBC Micro are not provided by the Electron, so a small number of statements do nothing when included in Electron programs.

BBC BASIC closely follows the Microsoft standard, but has many powerful additional features. These include:

- Long variable names.
- Integer, floating point and string variables.
- Multi-dimensional integer, floating point and string arrays.
- Many string handling facilities.
- IF . . . THEN . . .ELSE.
- REPEAT . . . UNTIL.
- Procedures.
- Local variables.
- Multi-line integer, floating point and string functions.
- Full recursion on all procedures and functions.
- Facilities for loading and saving of programs and data on cassette.
- Facilities for effective error trapping and handling.

A number of facilities are provided to simplify use of the Electron's full colour graphics and to enable sound generation using the internal loudspeaker.

In addition, the BASIC interpreter includes a 6502 assembler, enabling BASIC statements to be freely mixed with 6502 Assembly Language.

KEYBOARD

The Electron has a 56 key full travel QWERTY keyboard. There are ten user definable keys, and 29 pre-defined keys enabling BASIC keywords to be entered in a single keystroke. Each key has auto-repeat, and the keyboard has two key roll over and debounce.

LOUDSPEAKER

An internal loudspeaker is provided driven from a single channel sound circuit. It is controlled via four software channels, and facilities provided by the BASIC interpreter enable simple sound synthesis to be achieved.

CLOCK

An interrupt driven event timer is provided within the Machine Operating System which can be used as an elapsed time clock. It allows real time control and timing of users' responses to be incorporated in programs.

POWER SUPPLY

The low voltage input required for the Electron's internal power supply is provided from a transformer conveniently incorporated into the plug which is supplied with the machine. A three metre cable links the Electron to the transformer.

EXPANSION UNITS

A multi-way connector is provided at the rear of the basic microcomputer for the addition

At the heart of the machine lies 64K of memory. Of this, 32K is in the form of ROM (Read Only Memory) containing the Machine Operating System and BASIC interpreter. The other 32K is RAM (Random Access Memory), over 20K of which can be available to you for writing your programs.

GAMES . . .

An exciting array of games is immediately available for use with the Electron, taking full advantage of the very high quality of its graphics. The games shown here are published by Acornsoft, Acorn's own software applications company. Others will follow rapidly.

. . . AND BEYOND

But the Electron isn't just a games machine. Other software planned by Acornsoft includes programs for all levels of education from primary to college, technical and scientific programs, and programs to exploit the Electron's graphics and sound capabilities.

In addition, the Electron includes a built-in connector for the addition of hardware expansion units. Units planned for the future include interfaces to printers, ROM cartridges and games paddles.

DOING IT YOURSELF

With your Electron you get a free Introductory Cassette containing 19 programs, including a number of exciting games. These, and the other software available, will keep you happy for quite a time. But soon you're going to want to start creating programs of your own.

The Electron makes writing your own programs easier than ever before.

For a start, it comes with not one but two self-instruction manuals. The first is a User Guide giving details of the Electron's facilities, with many sample programs showing how they can be used. The second, *Start Programming with the Electron*, explains in a simple but stimulating way how to write programs using the structured programming approach adopted by professional programmers. The manual not only gets you writing programs quickly, but also teaches you good programming habits which

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The Electron is the new personal computer from Acorn Computers. It provides many of the powerful features found in an educational or business micro, but at a price to suit the pocket of home users.

BBC BASIC

The Electron is the ideal machine for learning computing – and for having a lot of fun at the same time.

But it's much more than just a toy. Its graphic facilities are the most sophisticated available in its price range. And it uses BBC BASIC, a powerful programming language which helps you to develop good programming habits to last a lifetime. More schools use BBC BASIC than any other language.

BEST EQUIPMENT

Everything about the Electron tells you that it's a machine with a future. Its tough but stylish case holds a full size keyboard, with the professional feel of an electric typewriter. It has ten user definable keys, and many of its ordinary keys can be used to produce command words in a single keystroke, greatly simplifying program entry and operation.

The Electron gives very high quality graphics output on either a colour television or monitor. It can be connected to most ordinary cassette recorders to store and retrieve permanent copies of programs. Sound synthesis is made possible by an integral loudspeaker, and an internal clock allows full timing procedures to be built into programs.

of expansion units containing interfaces to additional hardware. Expansion units will have a similar connector allowing any combination of units to be used with a single machine, and each unit will connect securely to its host by m[illegible] of finger-tightened screws.

TRAINING

Two self-instruction manuals are provided with the Electron. The first, a User Guide, provides descriptions of the facilities made available by the Electron with explanations of how to use them and numerous program examples. The second, *Start Programming with the Electron,* explains how to write efficient programs using the structured programming techniques made possible by the Electron's BASIC implementation. It forms an ideal introduction to programming for the novice, and a valuable refresher course for the more experienced programmer.

In addition, a comprehensive Introductory Cassette is supplied containing 19 programs. This demonstrates the capabilities of the Electron, and also provides programs that form the basis of some of the instruction provided in the manuals.

SERVICE

Technical support and service can be obtained from all accredited Acorn dealers. In case of difficulty write to:

Customer Service Department
Acorn Computers Limited
Fulbourn Road
Cherry Hinton
Cambridge CB1 4JN

A list of dealers is available from the same address.

DIMENSIONS

Depth 160mm; width 340mm; height 65mm.

POWER SUPPLY

13amp 240V domestic mains socket required. Actual power consumption less than 1amp.

ACORN COMPUTER
Acorn Computers Limited
Fulbourn Road, Cherry Hinton
Cambridge CB1 4JN

AMP 20

The Electron microcomputer system is designed and distributed in the UK by Acorn Computers Limited. Every effort is made to ensure that the information in this leaflet is correct, but we reserve the right to make alterations to the system at any time.

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